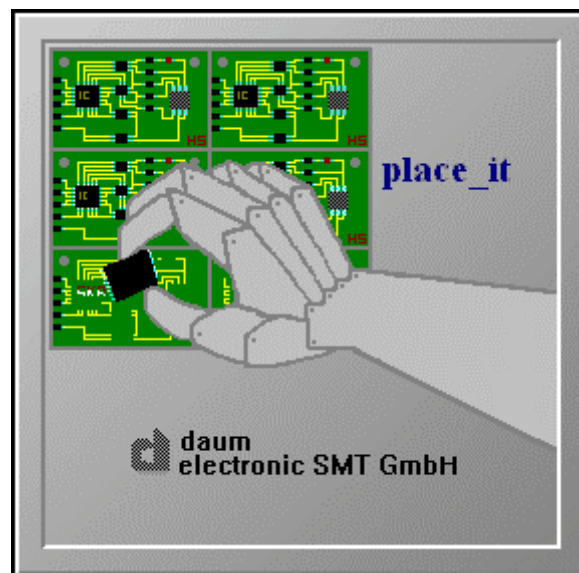

place_it VV

– Handbook –



Revision 015

Software created by Paks VV Ltd.
<http://www.paksvv.com>

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Advices, how to read the manual

We advise to read this manual completely and carefully, before installing the unit and the initial operation of the **place_it VV** -software. This manual contains instructions to tell you how to use the **place_it VV** -software and is thought as a dictionary, which will help you to master extraordinary situations. Further it is supposed to give you suggestions how to deal with placement system, as well as it may help you to generate your individual data.

Advices, concerning our own matter

We steadily make effort to keep the documentation of the **place_it VV** -software updated. According to the steady improvements it is possible, that differences occur between program and manual, so that the documentation is temporarily not matching. So if you happen to find minor differences between the documentation and the actual indication on the screen, you do not have a reason to worry, just ask us and we will try to correspond to your demand, so that the newest manual will be at your disposition. If you have additional suggestions about the improvements on the **place_it VV** -software, let us know about you ideas.

We wish you success, using the placement system.

Your company



daum electronic smt GmbH

Overview

Chapter 1: Introduction

the introduction gives the user quick instructions about the functionality of the placement system **place_it VV** and place_it.

Chapter 2: Installation

all instructions about installing the **place_it VV** program onto your PC are found in here.

Chapter 3: System overview

as soon as you installed **place_it VV** onto your PC, you are able to start the program. The corresponding orders, options and names of the standard data files, needed for the correct running of the program, are found in this chapter. Further you are given an overview of the functionality of the program to enable easier understanding.

Chapter 4: Main menu "LIBRARY"

in the following chapters we describe the functions of each main menu point and its sub-menus

the component data files, which are relevant for the pick-and-place machine, are kept in the library data files. Beneath the already existing library data files, which were delivered with the standard library STANDARD.SML, you have to comprehend the newly defined ones, as well. This means, that **place_it VV** automatically generates, out of a library data file, which was edited by you (Extension .SML), another one, which is understood by the pick-and-place machine (Extension .LIB). In this chapter you will learn how to maintain these, and how you can generate your own, individual component libraries.

the adjustment of the positioning of the dispenser, for the components chosen, can be done with help of this menu.

Chapter 5: Main menu "Project"

This chapter describes all functions, which are in touch with the component data files. **place_it VV** uses the following data types:

- description data files for the assembly of a specific PCB. Those data files contain extensions .PRJ and after **place_it VV** worked on them for place_it, the extension .PLC.
- data files containing the information for the dispenser run (these have the extension .DIS).

for some of the operations it might be useful, to skip one or more PCBs or components while the assembly procedure is running. For example, if a certain PCB is defective. Another possibility is, if a test run is done on a PCB, e.g. placement of the first and the last PCB or component, to test the variances of place_it during the placement procedure. This chapter describes the operations belonging to this action.

A dispenser data file is generated here for, which contains the information of the user data input and the library data file. The functionality of this menu option is described in this chapter.

Chapter 6: [Tableau] Wafer tray

While doing assembly on the PCBs, some of the components can not be picked from the feeder modules. Those component can be withdrawn from wafer trays. You will find a description of the specifications, which **place_it VV** needs to place that kind of components.

Chapter 7: Main menu "COMMUNICATION"

the **place_it VV** program communicates with the pick-and-place machine place_it, hereby it is possible to transmit the information from the **place_it VV**-software to the pick-and-place machine, and in reverse. The switching of the two functional modes and the resulting functionality's, respectively to the switching, can be controlled via this menu.

Chapter 8: Main menu item "OPTION"

the **place_it VV**-software can be adapted to your requirements. The possibilities and set-ups are described in this chapter.

Chapter 9: Common tasks

in here, you will find a conclusion, which tells you how to operate on the program. To read this chapter it is required, that you have enough knowledge about the pick-and-place machine place_it and its software **place_it VV**. You should, at least, have a previous knowledge from reading the chapters before. Furthermore we would like to suggest a possibility of organisation, to guarantee a transparent and save the keeping of the data files.

Appendix A: Interface

description of the 9-pin D-sub of the RS 232- interface

Appendix B: Error messages

list of the possible error codes

Appendix C: R-co-ordinates

table to explain the connection of the components and the R-co-ordinates referring to the standard library STANDARD.SML.

Appendix D: Placement area

illustration to explain the terms used for the placement area.

illustration to explain the terms used for the wafer tray picking area

Appendix E: Special Functions

Select size of placement area

Appendix F: Merge

Explains the merge function

Appendix G: Mirror

Explains the mirroring function

Appendix H: Centering

Overview about centering types

1. Introduction

The **place_it VV** - software package is a development of the company daum electronic smt GmbH and it is especially designed to transmit and to control the necessary data input for the pick-and-place machine place_it.

To guarantee a maximum of safety and operating facilities, we worked parallel on the development of hard- and software, with two qualified teams of engineers, while the results were steadily compared to each other.

The pick-and-place machine place_it is a cost-efficient tool to do assembly on SMD-printed circuit boards (PCBs). The size of the SMD-components on one hand and the necessity to produce large amounts in short terms of time, to cover the costs and to stay in competition on the other, are the decisive factors for the development of place_it. Operational appropriate considerations, rationalisation and optimisation of the control of the assembly and last, but not least the human work place layout for the wage earners, doing the assembly, are facts which influence the development of place_it.

place_it works after the pick-and-place principle. This means, that the mounting head picks one component after the other from the feeder (depot) and places it then onto the PCB, which has been prepared with the glue or solder paste. The withdraw and the transport of the component is done by a vacuum nozzle, which is adapted to the type of case. The positioning is done via movements of the mounting head and the placement table. The machining cycle, as well as the relevant data files here for, can be comfortably and safely planned and "programmed" via **place_it VV**-software. A connection between the PC and the software is not necessary for the machining cycle. This connection is necessary for loading of placement data files, only. place_it "remembers" up to 64 various products with up to 500 components of each product, this is also guaranteed in case of a power failure or if the machine has been cut off, as a battery buffer memory is integrated.

place_it is a combined system of hard- and software. The following graphic chart gives you an overview about the whole assembly system:

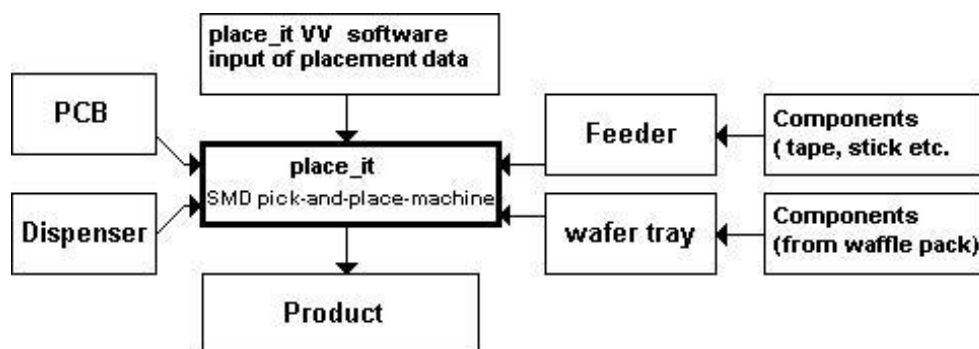


Illustration 1: place_it Logic

place_it needs the **place_it VV**-software to operate. **place_it VV** can run on all IBM-compatible computers. The acquisition of all relevant placement data files is done via **place_it VV**. After the acquisition of the data files, they are transmitted to place_it via

the serial interface of your PC. **place_it VV** and place_it are building the placement system together. These data files are as important to the pick-and-place machine as for example the PCB and the components.

The memory (RAM) of place_it is completely controlled by **place_it VV**. You can not change or delete any data files in the pick-and-place machine by yourself. Any kind of change on the data files has to be done on The PC, as the data files contained in the RAM of place_it can be used, but not be changed.

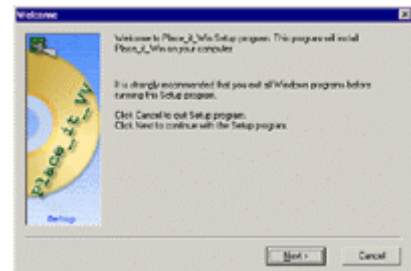
Anyway, place_it does not need to be steadily connected to the PC, just to influence the placement data via **place_it VV**-software, the machining cycle itself runs automatically, without the control of the PC. The requirement here for in the integrated RAM of place_it, which contains the data files received from the PC. You can imagine this RAM as a disk of your computer. It has the same characteristics as such a RAM-media: it is non-volatile. This means that, once data files have been transmitted to place_it, they are kept in the RAM of the pick-and-place machine, even if the machine is turned off.

2. Installation and starting of the program

2.1 Program installation

Start the **Setup.exe** file from the installation package. The installation program will appear on screen. During the installation, you will have the following buttons to operate: **Next >**, **< Back**, **Cancel**. Press the **Next>** button to get to the next step of the installation. To return by one installation step, press the button **< Back**. To terminate the installation press the **Cancel** button and then in the **Exit Setup** window press the button **Exit**. Please read carefully all instructions that you see on screen during installation process.

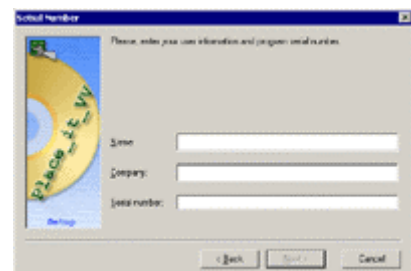
1. step This is the installation welcome screen. Please read and follow recommendations in this screen before continuing. Press the **Next >** button to continue the setup.



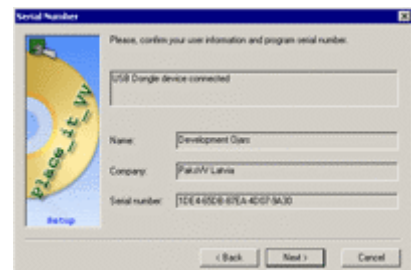
2. step License agreement. Please read carefully the license agreement and press the **Accept >** button only if you do accept the agreement. Pressing the **Accept >** signifies acceptance of the terms and conditions of the license.



3.1. step If you have installation **without** USB dongle then you must enter the name and company for who the software is licensed. You must also enter the correct serial number. Please make sure that you type the serial number exactly as it is written.



3.2. step If you **have** USB dongle then your name, company and software serial number will be automatically read from the dongle and displayed in the window.



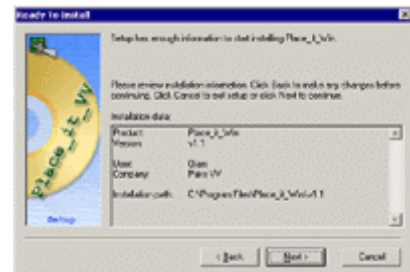
4. step Choosing folder for the installation. In this window you will be offered to choose in which folder you desire to install the program files. You may edit the folder path manually or press the **Browse** button to select it. When the installation folder has been chosen press the **Next >** button to go to the next step.



5. step Choosing folder for the work files. In this window you will be offered to choose in which folder you desire to install the sample work files. This folder will be used by default to save your created data files. Press the **Browse** button choose. When the work folder has been chosen press the **Next >** button to go to the next step. This folder will NOT be deleted when/if you uninstall the program.



6. step Setup information. In this window you can review the installation information. Press the **Next >** button to continue setup or **< Back** button if you need to make any changes. The next step will copy the files and update the system.



7. step Installation process. During this moment the program is being copied to disk and system is updated to be ready for the program.



8. step Finish installation. This window will display the result of the installation. You can also choose to put a shortcut for the program on the Desktop. Press the **Finish** button to end the installation process.



At this moment the program is ready to run.

2.2 Starting the program

There are two usual ways to start the program.

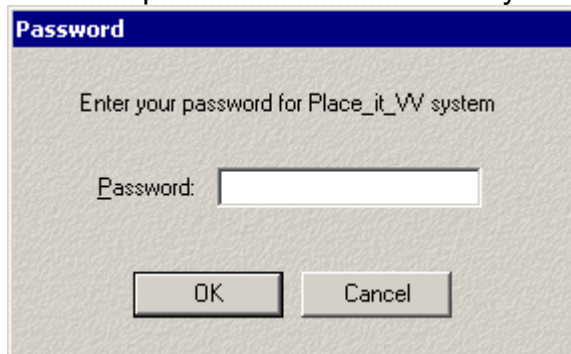
You can start it by using shortcut in the Start menu. It is located at **Start / Programs / Place_it_VV v1.1 / Place_it_VV v1.1** Alternatively, you can start the program using desktop icon.

If you have the software without USB dongle, then after installing the program must be registered. If you did not yet register the program then you will receive the following information window:



This window contains the registration data that must be sent to us by using email (daum.smt@web.de), fax or postal mail. Email is preferred and is the fastest way to receive the registration information. You may use the **Save...** button to save the key information as a text file. You will be asked where to save the file. Then you can send the file as attachment to the email or print it. After we process the registration information, we will send you a program, which will register your copy of the **place_it VV** on the computer.

If the program is already registered, then when the program starts up it will ask you to enter the password to access the system:

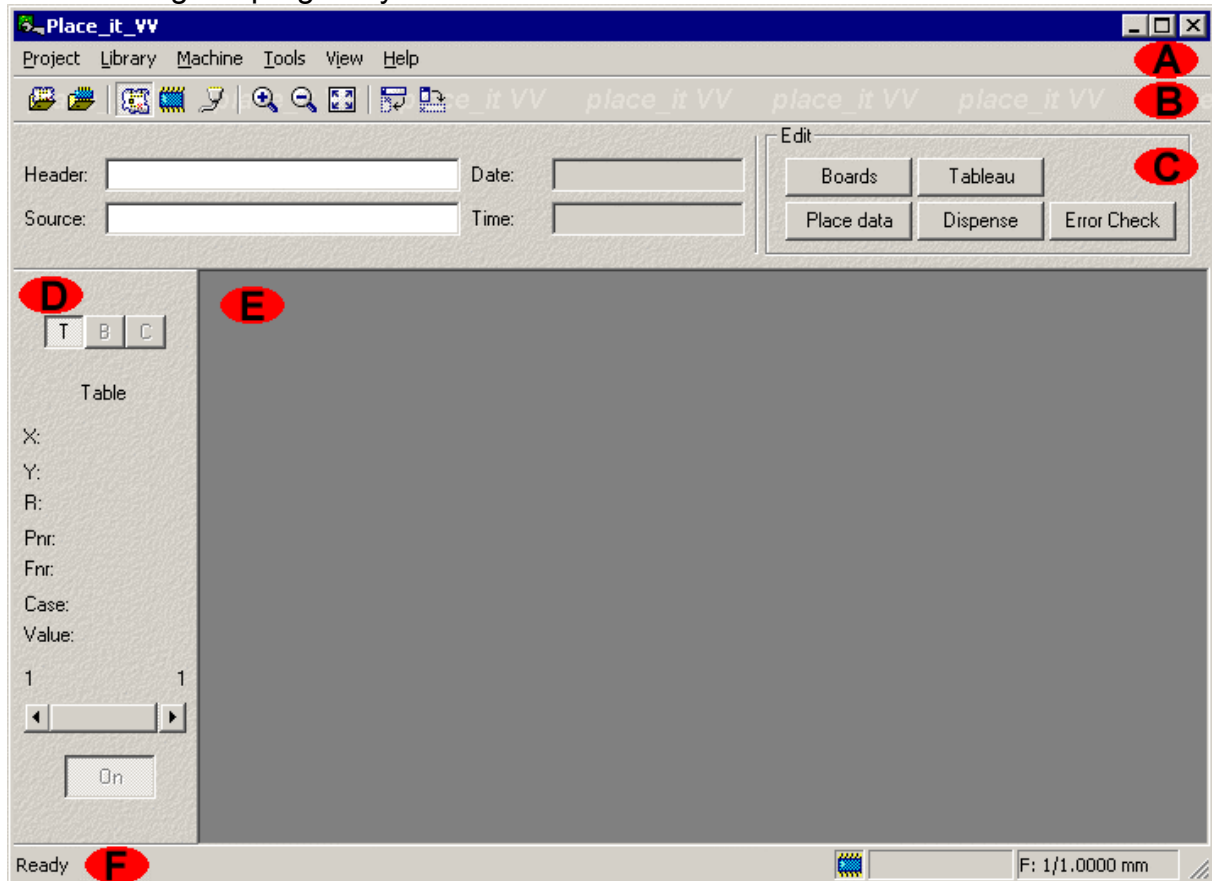


Default password after installation is **“eng”** (without quotation marks). The password can be later changed using Options window in Tools/Options menu.

3. Basic principles for operation

3.1 Program interface

After starting the program you will see the main window.



The interface of the program consists of the following parts:

- A. Main menu
- B. Toolbar
- C. Operation panel
- D. Information panel
- E. Image of a project (in Project or Communication regime)
- F. Status bar

3.2 Main menu

This is the description of the main menu.

Project menu contains items for operation with project.

- | | |
|----------------|-------------------------|
| <i>New</i> | Starts new project |
| <i>Open...</i> | Opens existing project |
| <i>Close</i> | Closes the open project |

<i>Import...</i>	This menu item appears if additional import filters are installed
<i>Save</i>	Saves the project with it's file name
<i>Save As...</i>	Asks for new filename and saves the project
<i>Info...</i>	Displays brief information about the open project
<i>Print...</i>	Prints information about the open project
<i>Exit</i>	Finishes the work with the program. If there were some changes to the project or library files that were not saved then program will ask do you want to save them.

Library menu contains items for operation with component library.

<i>New</i>	Starts new library
<i>Open...</i>	Opens existing library
<i>Close</i>	Closes the open library
<i>Save</i>	Saves the library with it's file name.
<i>Save As...</i>	Asks for new filename and saves the library.
<i>Info...</i>	Displays brief information about the open library
<i>Print...</i>	Prints information about the open library

Machine menu contains item to define the tableau.

<i>Tableau</i>	Opens the window where you can edit the list of tableau.
<i>Generate machine work files</i>	This is optional menu item and is not necessary for normal operation because buttons in communications regime will do this automatically. This item will generate all the work files (.PLC, .P01, .DIS and .LIB. The project files will be generated in the same folder where the project is and will have project filename. LIB will be generated in the folder where the library is located.
<i>Generate machine work files + Merge</i>	This menu item does the same as previous (<i>Generate machine work files</i>), but combines placement and dispense data in same output file. Merge function is explained in Appendix F.

Send file to machine This menu item is not needed for normal operation. This group of menu items gives ability to send files from your computer to the machine. You can send files generated by "Generate machine work files" menu item or generated by the old PLACER program. After selecting type of the file you will be asked to select a file which to send. After pressing Open button in the file dialog the file will be sent to the machine.

Tools menu contains item related to the program operation.

Options... Displays the options dialog where you can change program interface, passwords or communication information.

Create Link for INI File... This menu item will display a dialog where you can select INI filename and name of the link which will be created on desktop

View menu contains item related to the program interface.

Active Mode This menu item lets you to select the active mode/regime (Project, Library or Communications)

Window Mode This menu item allows you to change docking and position of operation and information panels.

Image Gives image zoom in, zoom out and zoom to fit commands. Zoom in shows more detail of the PCB while Zoom out shows less detail. Zoom Fit will fits the image of the PCBs to the screen (all placement table will be visible on screen).

Help menu contains item related to the program information.

About... Displays the information about the program, the version number and copyright information

3.3 Toolbar

Some of the items that you can get from the main menu are also accessible on the toolbar. It is provided for faster and more convenient access.



Buttons that double items of the main menu are arranged in the following order:

- Project / Open
- Library / Open
- Active Mode / Project
- Active Mode / Library
- Active Mode / Communications
- Image / Zoom In
- Image / Zoom Out
- Image / Zoom Fit
- Window Mode / Change 1st Window
- Window Mode / Change 2nd Window

3.4 Operation and information panels

These panels changes depending on the selected regime. Panels will be explained later in the documentation. You can switch keyboard focus to panels using keyboard key F6. Then you can use usual keyboard keys to navigate dialog windows (explained later).

3.5 Project image

If program is in Project or Communications regime then in this window you will see image of the loaded project. In this image you can see all boards and components (parts) on them. You can also see which elements (boards or components) are switched off. Parts with errors in the data are painted with red outline.

By clicking on this image you can chose active object which will be displayed in the information panel.

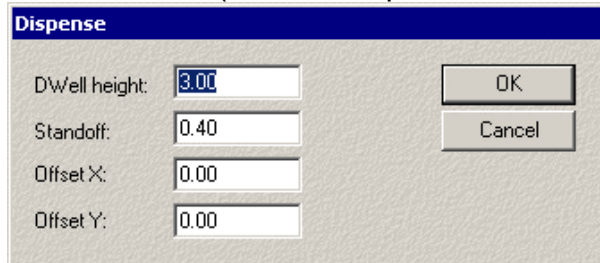
3.6 Status bar

Status bar displays current status of the program. Status bar have following four parts:

- Program status or short description for active menu item,
- Status icons such as “project is loaded (📁)” or “library is loaded (🔌)”,
- Coordinate of the mouse cursor position in the image of the project
- Coordinate multiplication factor

3.7 Other interface elements

While working with the program you will frequently have on screen windows that we call “Dialogs”, “Dialog boxes” or “Dialog windows”. You can navigate between controls in dialogs using mouse or using keyboard keys Tab (to move to next control) and Shift+Tab (to move to previous control).



Many dialogs have **OK** and **Cancel** buttons. **OK** button will save the changes that you made to the data in the dialog and will close it. **Cancel** button will close the dialog without saving any changes. Some dialogs have **Close** button that saves the changes that you have made and closes the dialog.

Some dialogs will have a control (window) called “Grid”:

Pnr	X	Y	R	Plc	Dis
R1	20.24	56.78	180.00	Y	Y
R2	31.70	65.25	90.00	Y	Y
R3	15.90	68.00	90.00	Y	Y
C1	30.34	78.20	180.00	Y	Y
T1	44.75	20.70	180.00	Y	Y
D1	77.70	14.30	180.00	Y	Y
IC1	67.00	51.20	180.00	N	Y
IC2	50.00	50.00	180.00	Y	Y
(new)					

You can use either mouse or keyboard to edit elements in grid window. To set the active line, press left mouse button on not-active line. To edit an element in active line press left mouse button on this element. If you want to edit element in not-active line then you must first left-click to make it active and then left-click again to edit.

If you prefer to use keyboard then you can use usual keyboard keys to navigate the grid window. Use **Up**, **Down**, **Page Up**, **Page Down**, **Home**, **End** to set the active line. Press **Enter** to start editing the first element in the active line. Press **Enter** again to edit the next element. When you press **Enter** on last element in the active line then editing mode will be closed and next line will become active. Using of **Tab** and **Shift+Tab** keys depends on the active mode of the grid window. If it's in line selection mode then Tab and Shift+Tab will move keyboard focus to next or previous control in the dialog. If grid window is in editing mode then Tab and Shift+Tab keys will change the element you edit to the next or previous. You can always exit editing mode by pressing **Esc** key (that will ignore changes to the last active element).

In any window or control where you have to enter floating values you must use dot (.) as the decimal separator. For example “1.45” or “23.15”. If you accidentally type a comma, then it will be automatically converted to a dot.

3.8 Coordinates factor

Often you will find the dimensions given for the XY-coordinates either in inch or other measures. Internally place_it VV works with millimetres so in previous versions you always had to manually convert your units to millimetres. By changing the factor value in the **Tools/Options** window you can tell place_it VV how to understand input values and how do display them.

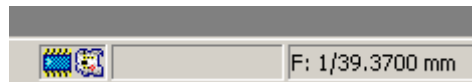
place_it VV uses following formulas:

$$\begin{aligned} \text{mm} &= \text{input_value} / \text{factor} \\ \text{displayed_value} &= \text{mm} * \text{factor} \end{aligned}$$

Use the following table as reference:

Units for input and displaying	Factor value
mm	1.0000
inch	0.03937
mil (1/1000 inch)	39.37

Please pay attention while inputting XY-coordinates in place data windows. All values will use the factor! The selected factor is also shown in the status bar at the bottom part of the place_it VV main window:



3.9 Character sets

Some edit fields are limited to following characters:

!"\$%&/()=?*+'#'-.:<>@ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789

Especially the German characters like “ÄÖÜäöü” gives the place_it pick and place machine problems if they are present in component case, name or value. By limiting fields to English characters and some symbols ensures that wrong characters are not sent to place_it machine.

4. Library regime

The usage of the libraries represents a fundamental optimization respectively to the working-speed, the data file safety, and the user facilities. Because of this you need to enter the component specific data only once, so that they can be referred to according to the case-type-information in the component mask. Those case-type characteristic details are necessary for the treatment and the positioning of the component by place_it, and should be determined very exactly.

When you change to library regime then operation panel will have two buttons **Table edit** and **Dialog edit**. Those are two ways to edit the information in the library. In table edit mode all library is displayed as one table. This allows to easy find information and quick editing. In dialog edit mode there will be more detailed information about each data field. It is suggested to use dialog mode for new users.

4.1 Editing using table mode

Library - Standard													
Case	Length(X)	Width(Y)	Height(Z)	R up	Nozzle	Vacc	Force	Center	X +/-	Y +/-	R +/-	Speed	Ftype
0805	2.000	1.300	0.600	180	1	120	1	3	0.100	0.100	1.000	5	1
1206	3.200	1.600	0.600	180	1	120	1	3	0.100	0.100	1.000	5	1
120602	3.200	1.600	0.600	180	1	120	1	3	0.200	0.200	1.000	5	1
120603	3.200	1.600	0.800	180	1	120	1	4	0.200	0.200	1.000	5	1
120605	3.200	1.600	1.300	180	1	120	1	4	0.200	0.200	1.000	5	1
121005	3.200	2.500	1.300	180	1	120	1	4	0.200	0.200	1.000	5	1
120602A	3.200	1.600	0.600	180	1	120	1	3	0.100	0.100	1.000	5	1
120603A	3.200	1.600	0.800	180	1	120	1	4	0.100	0.100	1.000	5	1
120605A	3.200	1.600	1.300	180	1	120	1	4	0.100	0.100	1.000	5	1
121005A	3.200	2.500	1.300	180	1	120	1	4	0.100	0.100	1.000	5	1
MINIMEL	3.600	1.400	1.400	180	2	100	1	1	0.100	0.100	1.000	5	1
SOD80	3.500	1.500	1.500	180	2	100	1	1	0.100	0.100	1.000	5	1
MELF	5.000	2.400	2.400	180	4	100	1	1	0.200	0.200	1.000	5	1
TAJ A	3.200	1.600	1.600	180	1	100	1	3	0.200	0.200	1.000	5	1
TAJ D	7.300	4.300	2.900	180	1	100	1	3	0.200	0.200	1.000	5	2

Dispense Sort Close

To add new case to library in table mode scroll down to the last line and edit the line that starts with "(new)". To delete a case from the library, activate it and then press the **Del** or **Delete** key on the keyboard.

4.2 Editing using dialog mode

To add a new case using dialog editing mode, press the **Add new** button. You will be required to enter unique case name.

To delete the case, select it in the list and press the **Delete** button.

4.3 Library data

Description of the library fields for editing using dialog mode:

Case

This is the key in the library after which the case-types are differed. A project has access to the library over this field, if it needs component relevant information. Case name must be unique in the library. If you enter already existing name then you will not be allowed to edit anything until you enter unique name.

Size:

Length (X),
Length (Y),
Length (Z)

These fields contain the measures of the component. The measures always refer to the overall size of the component (this means, the width of the component is referring to the width of the case plus the pins). The possible maximum values are 29,98 mm for the length and the width and 9,98 mm for the height.

Tolerance:

Length (X),
Length (Y),
Angle (R)

Those fields determine the positioning tolerance of the component. The highest precision should be at 1/10 mm and/or 0,1°. The values X and Y correspond to the placement coordinates and the value R corresponds to the turning of the component. The quotations indicate the approach to the ideal value and influences the precision of the placement and the speed of the machining cycle directly.

Pick up angle	This value is given in degrees (°) and determines the turning of the centering-system the moment of the withdrawal of the component. The picking-angle depends on the selection-characteristics of the centering pliers of the mounting head of place_it. If you do not want or can make a statement about the choice of the centering pliers, indicate the picking-angle with the value 180. This value is standard input.
Nozzle	Six various nozzle types (number 1 to 6) can be used within a machining cycle. The machine changes them automatically. Different nozzles are needed for different case-forms of the components.
Vacuum threshold	The integrated vacuum pump of the pick-and-place machine place_it produces a steady vacuum of 500...600 mbar. This vacuum is measured after centering of a component. The vacuum determined by the vacuum sensor is converted into an electric size. Valid values are figures from 2 to 245. The measured value is compared to a minimum value. The standard value which we advise in the field entry comes up to 130.
Bottom force z-axis	As the SMD-component are glued onto the PCB before the soldering process takes place, you are able by indicating the contact pressure to determine the size of pressure of the pick-and-place machine. Valid values are numbers from 1 to 6.
Feeder type mech. pushes	Depending on the size of the component and the feeder type you have to mechanically operate on the feeder, up to six times, to put the component into the right picking-position. Here you have to detail the amount of necessary mechanical operations. 1 = The feeder is mechanically operated on, once 2 = The feeder is mechanically operated on, twice ... 6 = The feeder is mechanically operated on, six times
Speed	This parameter defines the speed into X,Y and R-axis, with which place_it picks the component from the feeder and transport it to the PCB. This option has been installed in order to obtain a higher exactness in assembly. Large components and/or components with many connections can now be set very precisely, with extremely low speed. Valid values 1...5, slowest speed = 1 Regular speed of machine cycle = 5

Centering of jaws This value determines the centering of the component by the centering pliers of the mounting head. Valid are numbers from 0 to 15, which means:

- 0 – no centering
- 1 – centring pair 1
- 2 – centring pair 2
- 3 – Both centring pairs
- 4 – No centering
- 5 – centring pair 1, slow centering
- 6 – centring pair 2, slow centering
- 7 – Both centring pairs, slow centering
- 8 to 15 see description of place_it machine
" Completion 1 E1 page1"

Examples:
 For case-type 1206 you ought to indicate 3
 For case-type SOD 80 you ought to indicate 1
 For case-type SOT 23 you ought to indicate 7
 For case-type QFP... you ought to indicate 12

Read appendix H for more information.

Relation between field names in dialog edit mode and table edit mode:

Dialog edit mode	Table edit mode
Case	Case
Size Length (X)	Length (X)
Size Width (Y)	Width (Y)
Size Height (Z)	Height (Z)
Tolerance Length (X)	X +/-
Tolerance Width (Y)	Y +/-
Tolerance Angle (R)	R +/-
Pick up angle	R up
Nozzle	Nozzle
Vacuum threshold 1	Vacc
Bottom force z-axis	Force
Feeder type mech. pushes	Ftype
Speed	Speed
Centering of jaws	Center

In both editing modes you can press the **Sort** button to sort library alphabetically by Case name.

The library name could only have 8 characters. Otherwise you will have a message and you have to change library name. The file name is also limited to English characters A–Z, a–z; digits 0–9.

4.4 Dispenser data

Press the **Dispense** button to open dispense information dialog:

The 'Dispense' dialog box contains the following fields and controls:

	+/-	X	+/-	Y	Pins	Spacing
Left:	-	0.000	+	0.000	0	0.000
Up:	-	1.500	+	0.000	2	3.000
Right:	+	0.000	+	0.000	0	0.000
Down:	+	0.000	-	0.000	0	0.000

Time parameter: 200

Close

Time parameter

This value determines time in milliseconds in which the cartridge is under pressure for each dispense dot. Valid values are 1 to 999 milliseconds.

+/-

This will tell is the value of X or Y positive or negative

X, Y

Position of first dot for each side

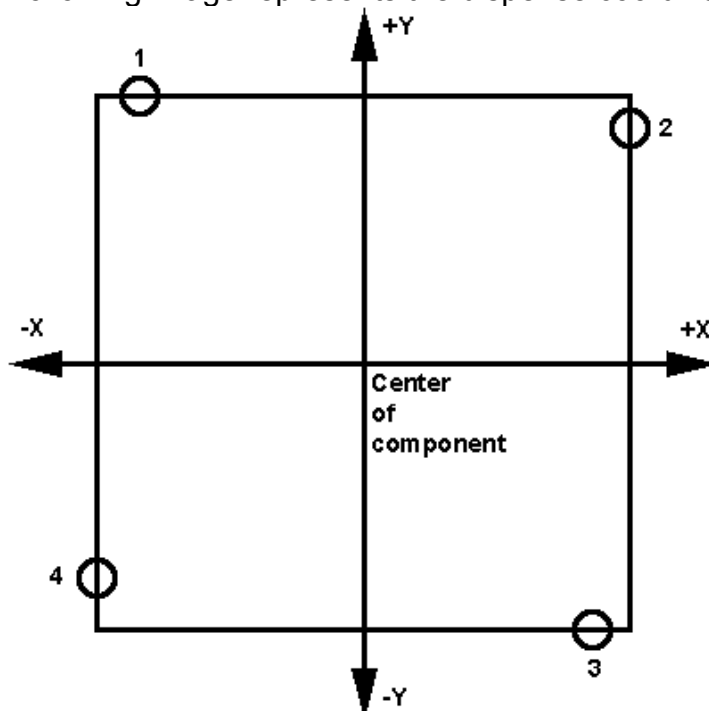
Pins

Number of dots on each side

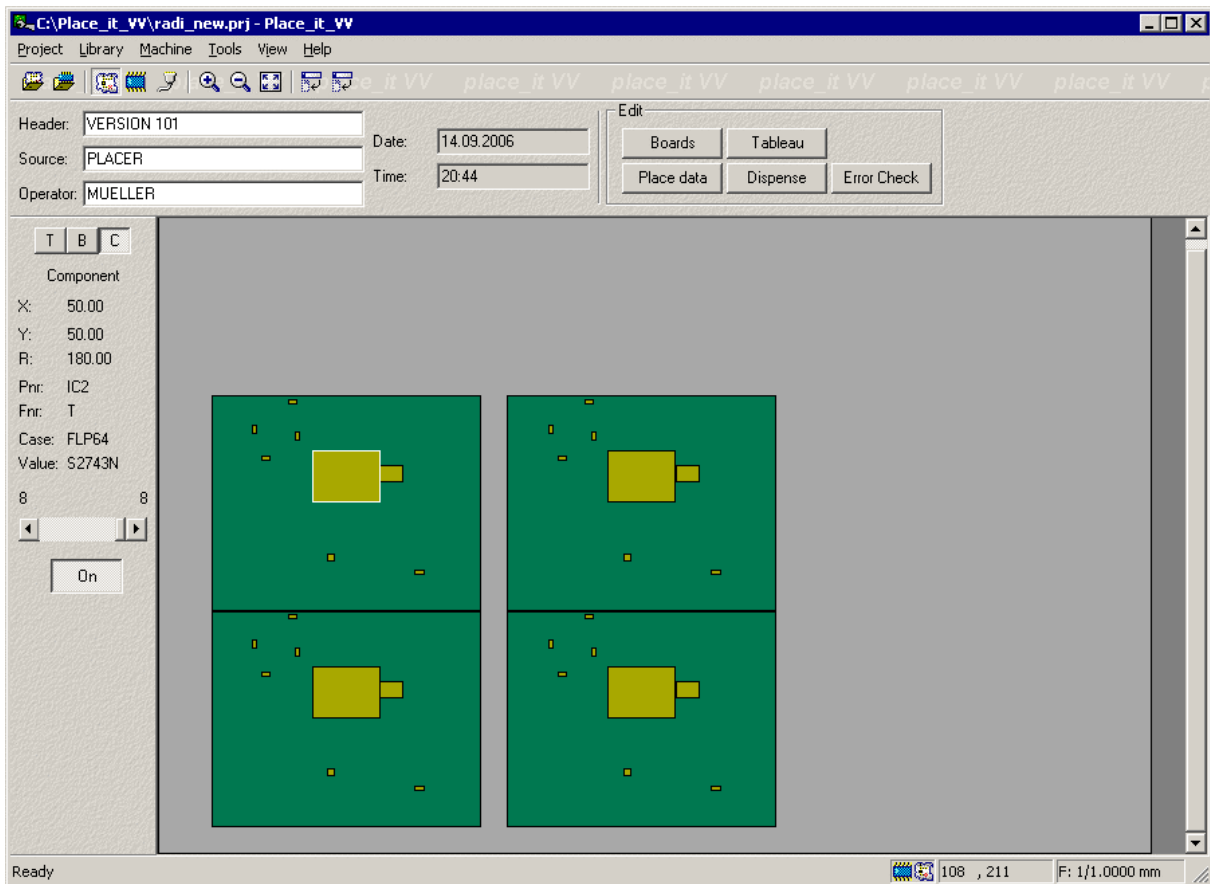
Spacing

Spacing between two adjacent dots

Following image represents the dispense coordinates:



5. Project regime

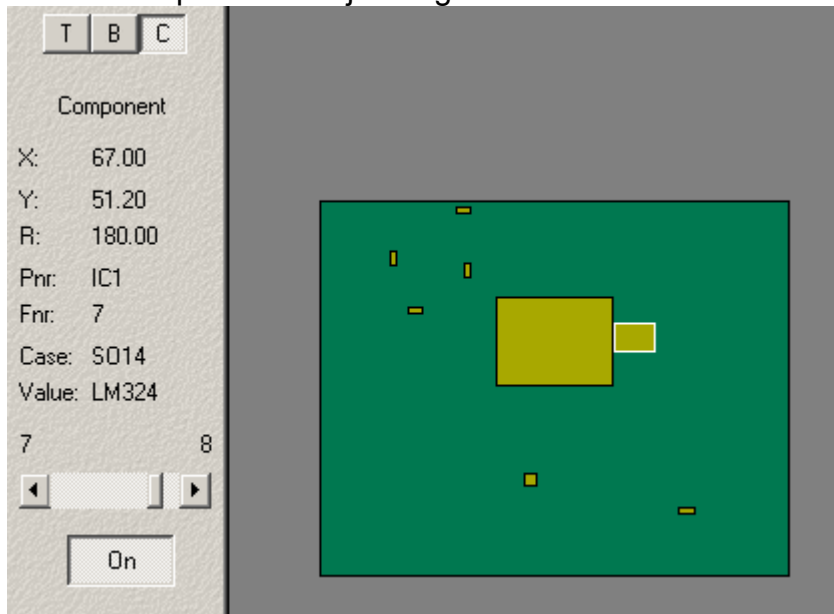


In the Project regime you will create data which is used to assemble the PCB.

Project always uses the library which is loaded into the system. Project uses exactly one library. If there is no library loaded when you load a project or the library does not have information about some or all components which you use in the project then the program will inform you about this.

5.1 Information panel

Information panel in Project regime looks as follows:



Here you can see buttons **T**, **B** and **C**. These buttons select the active element type on the image. On the image active element is outlined with white rectangle. You can also select the active object type by clicking on the object in the image.

T is Table. It is whole table of machine.

B is for Boards. When the board is active then you can see its X and Y coordinates and also rotation angle – R.

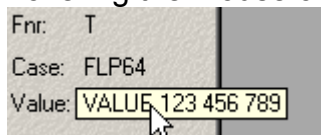
C button selects Components. When component object type is selected then you can see following information about it. Its position (X, Y), rotation (R). You can see part number (Pnr), feeder number (Fnr), component case and value.

When the active element type is selected then you can select each element of the same type using the scrollbar:



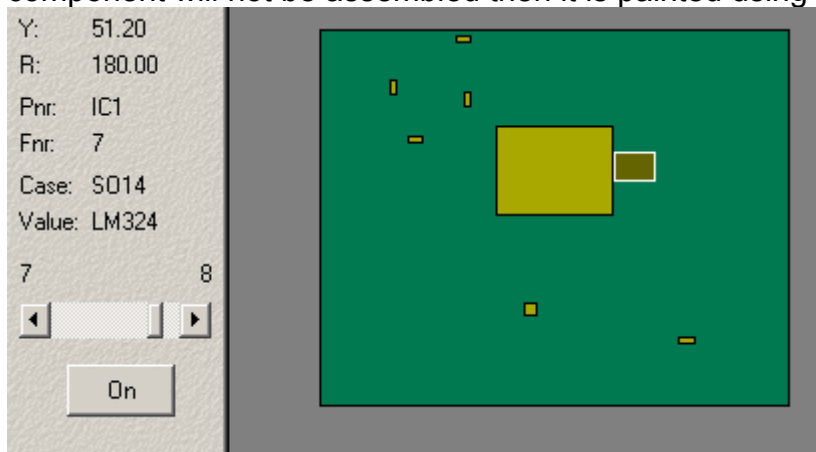
On top of the scrollbar you can see the current active element number (to the left) and total number of elements (on the right). For components it is total number of elements on one board.

In case of long text (for example value descriptions) you can see full name by hovering the mouse over the text:

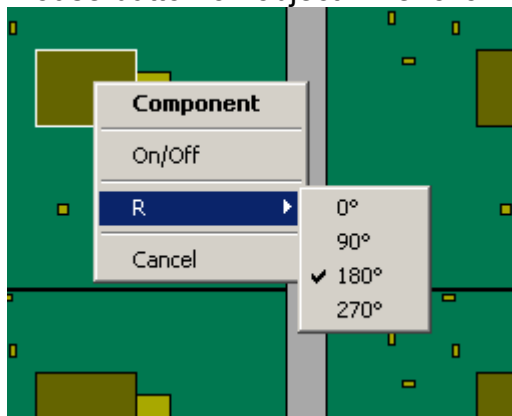


Below the scrollbar there is **On** button. This button allows you to include/exclude selected board or component from the assemble process. When the button is pressed then board or component is included and will be assembled. If the button is

not pressed then the board or component will not be assembled. If board or component will not be assembled then it is painted using darker color on screen:



You can also use the mouse context menu to set the On/Off state of the objects. You can also set component rotation to 0°, 90°, 180° and 270°. To do this, press the **right** mouse button on object. The following menu will appear.



At the top of the menu you will see the type of object on which you clicked. It will be Table, Board or Component. Then you can set object On, Off or rotate it by clicking on the menu item. Click on Cancel menu item to close the menu without changing the object.

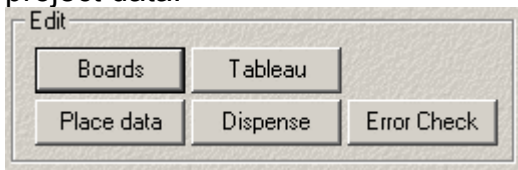
5.2 Operations panel

In Project regime operations panel consists of two parts – project information and project editing.

Project information displays **Date** and **Time** when the project was saved last time. It also displays and allows to edit **Header**, **Source** and **Operator** fields. You can store your individual comment in **Header** field. This field is used for your information and does not affect the placement process. **Source** field gives you possibility to identify the origin of your data. You can enter name of the person working on the project in the **Operator** field. **Date** and **Time** displays project save time.



Project editing consists of buttons that are used to open dialogs for detailed editing of project data:



Following is description of buttons.

Boards button will open dialog where you can edit what boards you have in the current project.

Tableau button will give you dialog where you can select which tableau from the machine tableau list will be used for this project.

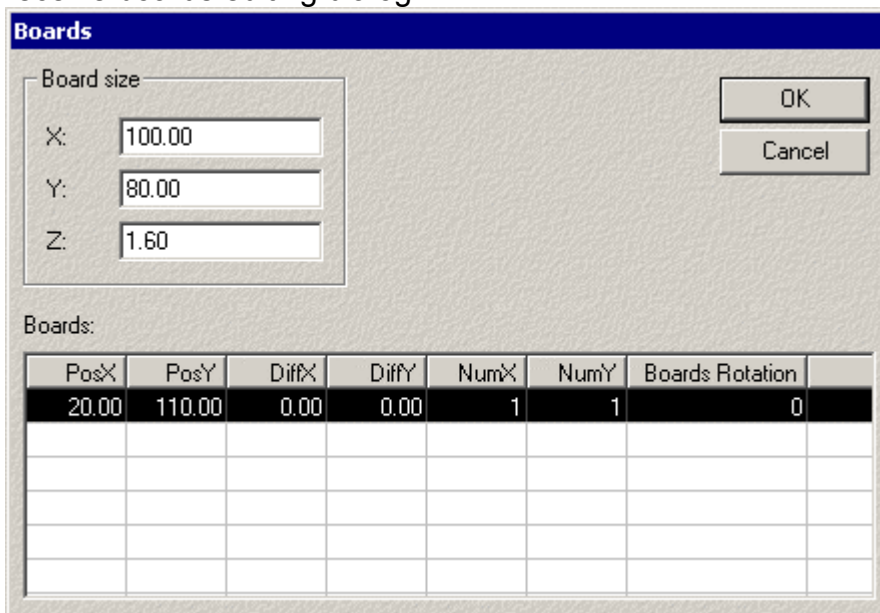
Place data button is used to open dialog where parts, components and feeders are edited.

Using **Dispense** button you will get a dialog where you can set dispense parameters.

Error Check button will display you any data errors if such exist or will inform you that there are no errors. You will be able to generate output files only if there are no errors in the project data.

5.3 Editing Boards

When you press **Boards** button in the operations panel of the Project regime you will receive boards editing dialog:



First of all in this dialog you must enter PCB size. Please remember that dimensions of the whole placement table are X=350mm and Y=240mm.

Board size X, Board size Y These values describe length and width of one PCB. Make sure that these values are as precise as possible because they are used when the board is being rotated.

Board size Z This value defines the height of the PCB.

When one board is defined you must tell where the board is located and how many boards are there.

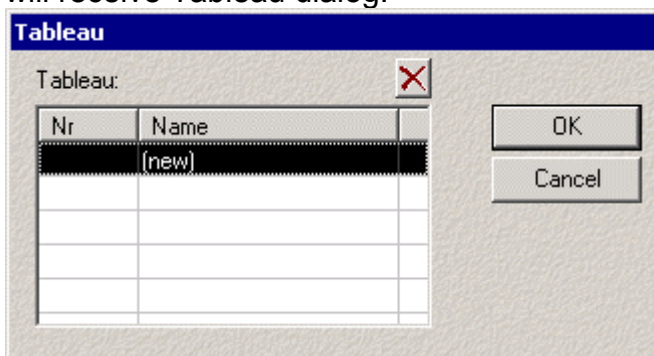
PosX, PosY	This is the zero point of the first board. It is lower left corner.
DiffX, DiffY	These values defines distance between zero points of two adjacent boards. Usually size of board + space between two adjacent.
NumX, NumY	The number of boards for each axis. The complete amount of boards (NumX x NumY) may not exceed 160.
Boards Rotation	The rotation angle of the board in degrees. Turning is always clockwise and valid values are 0, 90, 180, 270 degrees.

If your project will have only one board then enter 0 into **DiffX** and **DiffY** fields and enter 1 into **NumX** and **NumY** fields.

Press **OK** button to save the changes or **Cancel** button to exit the dialog without saving the changes.

5.4 Selecting Tableau pack

When you press **Tableau** button in the operations panel of the Project regime you will receive Tableau dialog:



You need this if you are assembling one of the components using tableau. Under the **Nr** please select T1 and under **Name** select the tableau name from the machine list which you will use in this project.

To delete the tableau from the list, select it and then press **Del** or **Delete** key on the keyboard or delete tableau (X) button in the dialog

If you do not assemble components from tableau in the current project then you don't need to enter anything in this window.

Press **OK** button to save the changes or **Cancel** button to exit the dialog without saving the changes.

5.5 Place data

By pressing **Place data** in the operation panel you will receive dialog where you must enter parts, components and feeders information. Before pressing this button make sure that you already created a board. Otherwise you will receive error message telling you to create board first.

The Place Data dialog looks as follows:

Place

Parts: Find (by Pnr):

Pnr	X	Y	R	Plc	Dis
R1	20.24	56.78	180.00	Y	Y
R2	31.70	65.25	90.00	Y	Y
R3	15.90	68.00	90.00	Y	Y
C1	30.34	78.20	180.00	Y	Y
T1	44.75	20.70	180.00	Y	Y
D1	77.70	14.30	180.00	Y	Y
IC1	67.00	51.20	180.00	Y	Y
IC2	50.00	50.00	180.00	Y	Y
(new)					

Parts editing:

Components: ☒ All ☐ Current ☐ Placement ☐ Dispense

Link: ☐ Assing Part to Component

Components:

Case	Compname	Compvalue	Comptol	Comp_id	Waste	Total
1206	WIDERST...	100K	5.00		1	1 (1)
1206	WIDERST...	10K	5.00		1	1 (1)
1206	WIDERST...	2.2K	5.00		1	1 (1)
1206	CAPACITOR	100NF	10.00		1	1 (1)
SOT23	TRANSIST...	BC847B	0.00		1	1 (1)
SOD80	DIODE	BAS32L	0.00		1	1 (1)
S014	IC	LM324	0.00		4	1 (1)
FLP64	IC	S2743N	0.00		4	1 (1)

Feeders:


Fnr	Offset X	Offset Y
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00


This dialog consists of many different elements. The main elements are **Parts**, **Components** and **Feeders** grid windows. How to use grid windows please read the description in the point 3.7 of this documentation.

In the **Parts** grid window you define positions and rotation of parts on the PCB. Description for fields is following:

- Pnr** Part name. This is text field. Maximum 6 symbols.
- X, Y** These fields indicate the distance from the centre of the part to the zero point of the board. This position must fit within dimensions of the board.
- R** This is the turning angle in degrees which defines how the component will be placed. The smallest available step is 0.1 degree. This value can go from 0 to 360.
- Plc** This is placement field. There are two possible values – **Y** and **N**. **Y** indicates that the part will be assembled while **N** tells that the part will not be assembled.

Dis Dispense field can have two values **Y** and **N**. If the value is **Y** then the machine will use dispenser for this part. If the value is **N** then dispenser will not be used for this part.

You can search by part names. Type the first or more letters of the part name that you want to find in the **Find (by Pnr)** field and then press the find () button. Pressing the button will search down starting from the current active line.

To delete a part, make it active and then press the **Del** or **Delete** key on the keyboard or delete part () button in the dialog.

Next is the Components window. Frequently there is one component that must be placed at more than one place on the board. In the Parts window you define the positions and in Components window you define what component will be placed. Components grid window allows to edit following information:

Case	This field makes a cross-reference to the component library in which the component parameters, like dimensions, etc. are stored. This field will list only those case names that are available in the loaded library.
Compname	Here you can type name or type of the component. We advise to use the regular abbreviations like R for resistor or C for capacitor. This field is alpha-numeric.
Compvalue	You receive this information from the wiring diagram. You may not use comma in this field. If necessary then replace comma with a dot. For example 4K7 or 100K . This field is alpha-numeric.
Comptol	This is component tolerance. Take this information from the wiring diagram. For example 10% . This is numerical (float) field.
Comp_id	Often the manufacturers offer additional information, for example the voltage of a capacitor. This field is alpha-numeric.
Waste	If pick-and-place machine is not able to place a component then it will throw away the component into one of the maximal four waste boxes. The number in this field indicates the corresponding waste box.
Total	This field will show you how many parts are using this component (shown within brackets). It also shows how many of them will be assembled.

To delete a component, make it active and then press the **Del** or **Delete** key on the keyboard or delete part (✖) button in the dialog. You can not delete a component if it is used by any of Parts. You can delete only if **Total** field shows **0(0)**.

Last grid window defines feeders.

Fnr

Feeder number. For each component you use one feeder module. The value in this field specifies the position of the feeder on place_it machine, starting with the feeder on the left (from the sight of the user) as number 1. The maximum amount of feeder modules per machine is 55. If the specified component will be take from tableau then you must enter **T** in this field. If there is no feeder number entered then the feeder will be painted in dark red color. If two feeders have same number then they both will be painted in bright red color. You also will not be able to save the data while there are two feeders with same number. When creating new feeder the first free feeder number will be automatically assigned. You can later change it if necessary.

OffsetX, OffsetY

These fields define the offset of the picking position of the nozzle to centre of the feeder.

Components and feeders are always locked together. When you change active line in components grid window then accordant feeder will became active and vice versa. Each part must be linked with a component. When you change active part then linked component will automatically became active. When you change active component then first part that uses this component will became active and all other parts that use same component will be painted in blue color.

When you create new part, select first the component which will be used for the new part. Then the link will be created automatically. If you need to manually assign a link between part and component then you must do following:



Step 1. Check the **Assign Part to Component** checkbox.

Step 2. Activate the part which you want to change. If the checkbox is checked then changing active part will not change the active component.

Step 3. Select the component which you want to link to the active part.

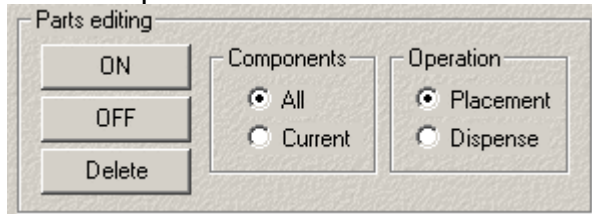
Step 4. Press **Execute** button and answer **Yes** to assign or change the link.

If you need to change link for another part then repeat the steps 2-4. When you are done then uncheck the **Assign Part to Component** checkbox.

You can also select more than one part while assigning components. To select contiguous parts activate first part then press and hold the **Shift** button on the keyboard and activate last part. Then release the **Shift** button. All parts from first to

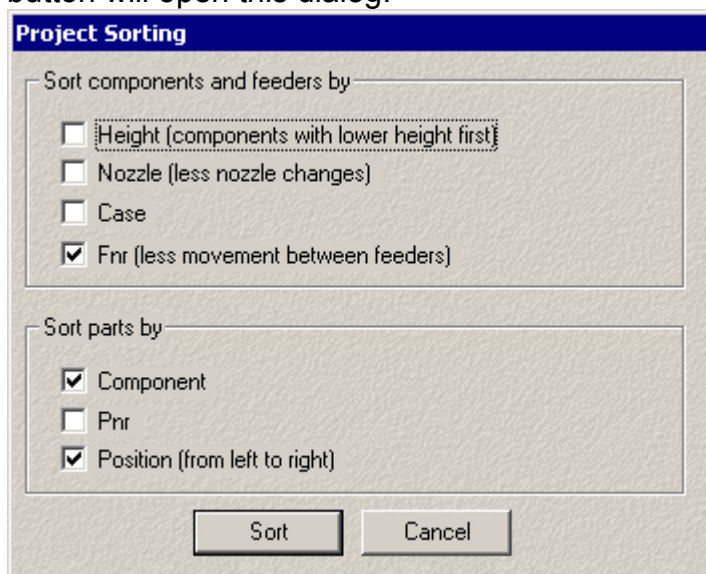
last will be selected (painted with inverse color on screen). When pressing **Execute** button then all these selected parts will be linked with the active component. If there is part which is not linked to any component then it will be painted in dark red color.

Parts editing will allow you to set placement, dispense parameters or delete more than one part:



To set Y or N for placement parameter or dispense do the following. Select **All** if you want to change all parts or **Current** to change only parts which are linked with current selected component (the parts which are painted with blue color). Then select operation – **Placement** or **Dispense**. After that, press **ON** or **OFF** buttons to change. To delete more than one part select **All** or **Current** component and then press the **Delete** button. The delete operation will ask for confirmation. Answer **Yes** to delete.

It is possible to sort parts or components by different parameters. Pressing the **Sort...** button will open this dialog:



The order of sort operations is the same as elements order in this dialog from top to bottom. You can check or uncheck any sort parameters. If you check parameters that can not be used together then program will automatically uncheck those which can not be used together. Sorting directly affect order how the parts will be assembled. Meaning of sort parameters is following:

Height

Components whose height is lower will be placed first. This is necessary if components on board is placed close together and placing higher component first will not allow the nozzle to move down and place lower components. This sorting is recommended when you sort for assembling.

Nozzle	Components will be sorted so that all components from one nozzle is placed first, then all components using next nozzle, etc. This sorting is recommended when you sort for assembling.
Case	This will sort components by the case type. This is useful while you edit the data so you can more easily find or see the information.
Fnr	All components from first feeder will be placed first, then all components from second feeder will be placed and so on until we reach last feeder. This sorting is recommended when you sort for assembling.
Component	This will sort parts by using order of components. So parts that are linked with first component in the list will be in the beginning. Following by parts which are linked with second component in the list and so on. This sorting should always be used when you sort parts for assembling. Otherwise sorting by Height, Nozzle or Fnr will do nothing.
Pnr	This type of sorting is useful when you need to find specific part by it's name.
Position	This will sort the parts so that they are assembled from left to right. Please remember that using together with Component sort only parts that uses same component will be sorted from left to right.

It is possible to sort parts and components/feeders manually. To sort manually use the Up and Down arrow buttons in the Place Data dialog:



Pressing these buttons will move the active element up or down by one row.

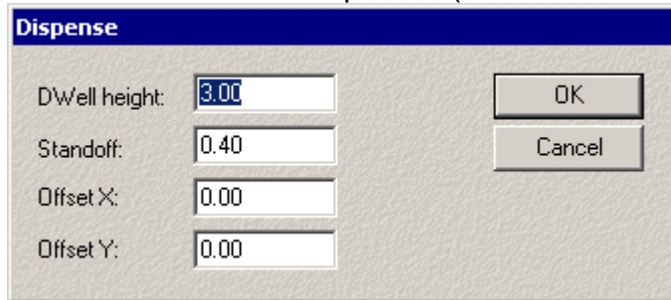
Meaning of the **Mirroring...** button is explained in Appendix G.

The Place Data dialog includes a **Import *.P01...** button. Pressing this button will ask you to select a position file (*.P01) from which you want to import the adjusted feeder positions. Import the positions when you already have feeders in the project. This will import data only for available feeders. When you create new project but do not change feeders on the machine it is useful that you receive *.P01 file of already existing project and then import it into the new project.

Press **OK** button to save the changes to the project and close the dialog. Press **Cancel** button to close the dialog without saving the changes.

5.6 Dispenser

By pressing **Dispense** in the operation panel you will receive dialog where you can enter information for dispenser (if it will be used):

A screenshot of a software dialog box titled "Dispense". It has a blue header bar with the title. Below the header, there are four input fields with labels: "D'Well height:" with a value of "3.00", "Standoff:" with a value of "0.40", "Offset X:" with a value of "0.00", and "Offset Y:" with a value of "0.00". To the right of these fields are two buttons: "OK" and "Cancel".

You must enter following values for dispenser:

DWell height	Floating height. Valid values: 0 to 30.00 mm. This value determines the height, on which the dispenser needle has to be lifted to after setting a dispense dot. The dispenser needle is driven to the next dispense dot in this height (over the PCB surface). The default-value is 20.
Standoff	Pull-back lift. Valid values: 0 to 1 mm. The dispenser needle sets first onto the PCB and then moves up, by the value of the given pull-back lift. This will define the size of the dispense dot. The default value is 0.
Offset X, Offset Y	Zero-point X/Y. The zero-point of the dispenser can vary from the PCB zero-point, because of tolerance appearing while mounting the cartridge in the provided holding device (e.g. inserting of a new dispenser-cartridge). This can be corrected here (If the PCB zero-point lays onto 0, you can not proceed on a minus correction!).

6. Tableau

The tableau is used to pick up components from a wafer tray. Using menu **Machine/Tableau** you will get the dialog where you can edit tableau defined for the machine:

Name	ZeroX	ZeroY	NumX	NumY	DiffX	DiffY
Test	300.00	20.00	9	5	30.70	15.50
Radio	300.00	20.00	8	5	30.70	15.50
(new)						

You must fill following information for each tableau:

- | | |
|---------------------|--|
| Name | This is the name of the tableau. When you select tableau from the list in the Project regime then you will see these names. |
| ZeroX, ZeroY | This value describe the distance from the geometric centre of the first tableau component (lower left on the tableau) to the zero point of the placement table. These values are positively collected (maximum value for X = 355 mm and Y = 255 mm). |
| NumX, NumY | Amount of components. You have to indicate the amount of components in X and Y directions. |
| DiffX, DiffY | Component distance. This value defines the distance in X and Y directions between the centers of two adjacent components. |

To delete one tableau, make it active and then press **Del** or **Delete** key on the keyboard.

Use of tableau changes interpretation of some project information (in Place Data dialog).

Waste box (**Waste**). This field is not taken into account, but it has to be filled anyways. Enter any value between 1 and 4 into this field. Tableau components which can not be assembled correctly are not thrown into a waste box. They are laid back into the tableau where it has been taken from.

Feeder number (**Fnr**). If you use a component from tableau then you have to enter **T** into this field.

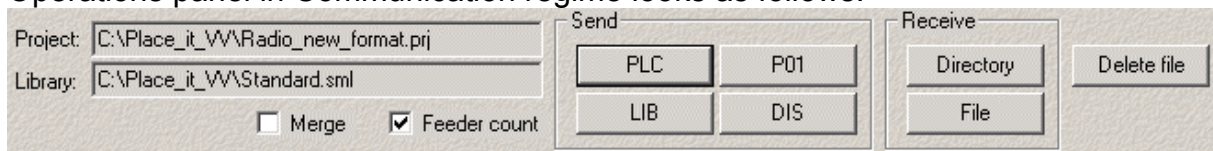
Components in tableau also ignores **Feedertype mech. pushes** or **Ftype** parameter in library. But you still have to fill the field.

7. Communications regime

In the Communications regime you can send, receive and delete files from place_it machine.

Information panel in the Communications regime work similar as the information panel in the Project regime.

Operations panel in Communication regime looks as follows:

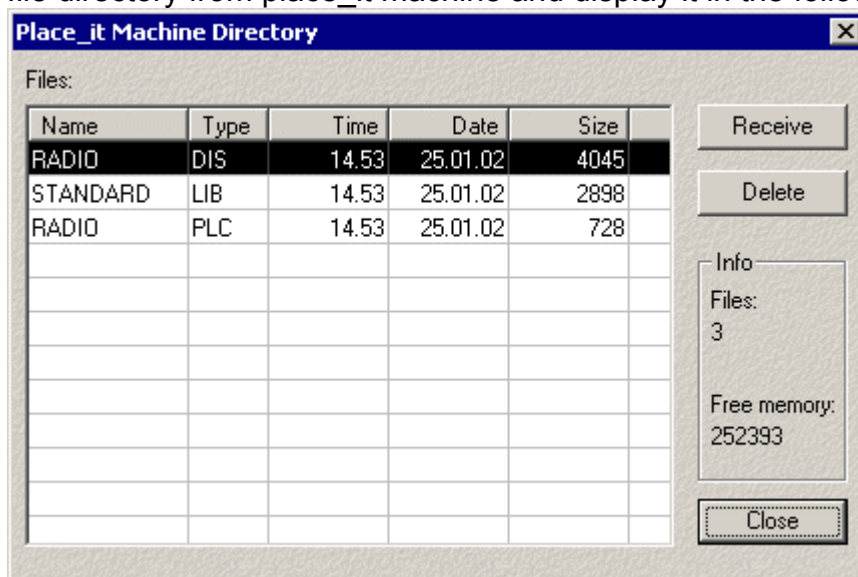


Project and Library fields shows the current loaded project and library.

To send the files use the **PLC**, **P01**, **LIB** and **DIS** buttons in the **Send** group. These buttons will automatically generate the accordant machine file (in temporary location) and then send it to machine. Before generating, the program will check are the files free from errors.

If the file with the same name is already on the machine then you will receive a message where you can allow to overwrite the file or cancel the send. You may use the directory button to find which files are present on the machine.

Receive group have two buttons – **Directory** and **File**. **Directory** button will receive file directory from place_it machine and display it in the following dialog:



In this dialog you can see list of the files on the machine. Select the file and press **Receive** button to send the selected file from machine to the PC. When the file is received you will be asked where to save it on the PC.

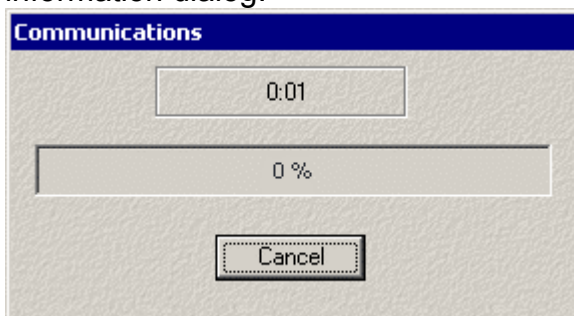
If you need to delete a file then select it in the list and press the **Delete** button in the dialog.

The **Info** group shows the number of files on the machine and free memory which is available on the machine for new files.

File button in the **Receive** group of the operation panel will let you to receive a file from place_it machine. It will open a dialog that will ask for the name of the file. Type of the file you select by pressing the according button (**PLC**, **P01**, **LIB** or **DIS**). Then press the **Receive** button to receive the file. When the file is received then you will be asked where to save it on the computer.

Delete button in the operation panel will let you to delete a file from place_it machine. It will open a dialog that will ask for the name of the file. Type of the file you select by pressing the according button (**PLC**, **P01**, **LIB** or **DIS**). Then press the **Delete** button to delete the file.

While the program is communicating with the place_it machine it displays following information dialog:



Here you can see the progress of the operation and how much time it is already working. You can press the **Cancel** button to stop the communications.

place_it VV have checkbox **Feeder count** in operations panel. By default it is checked which means that after uploading the project to the machine, the machine will do a feeder count. You can uncheck the box if you do not want machine to perform feeder count after loading new project. This is especially made for PCB blanking. Select PCBs in Project which have not to be assembled and sending Project to place_it machine no feeder count is required.

Appendix F explains meaning of the **Merge** checkbox.

8. Options

In the main menu point Tools of **place_it VV** you have following options that you can change.

In the **General** tab:

Language	You can switch between English and German language for Place_it VV interface elements.
Flat Toolbar	This will change appearance of the toolbar. This option may not work on the first versions of Windows95.
System library	Here you can select path to the system library files (for example, machine tableau is saved there)
Factor	Please read point 3.9 in this documentation for explanation of factor value.
Reset columns	If column width of columns in different tables has been modified, pressing this button resets the width of all columns to the default value.

In the **Password** tab:

Old password	If you want to change the password then type the old password here
New password	Type new password here
Confirm password	Confirm the new password by typing it in this field

In the **System** tab:

Select COM port	Only currently available COM ports will be enabled. Select the COM port where place_it machine is attached.
COM Baud rate	Select the speed of COM port used by your place_it machine

Sometimes it is desired that you can use **place_it VV** with different configurations. It is especially useful if you have more than one machine and use one computer to work with machines. For this reason it is possible to create an INI file which will save following parameters:

- COM port
- Last used project
- Last user library

To tell **place_it VV** which INI file to use, you must start the application with **-i** parameter followed by full filename of the INI file. For example:

Place_it_VV.exe -i "C:\Place_it_VV\pl_machine1.ini"

Adding a parameters can be a hard task for regular computer users. Because of that there is menu item **Tools / Create link for INI file**. By using this menu item you will

open a dialog where you have to enter link data. In the **Link name** field type the name, which you will see on the desktop (for example, Machine_1). Then press the **Browse** button and find the existing INI file (if one exists) or go to the directory where you want the new INI file to be created and type a new name for it (for example, C:\Place_it_VV\Machine1.ini). Press the **Create** button which will create the link with given name on the desktop. If link was created successfully then you will see confirmation message. Then exit the program and start it using the new link from the desktop. Set the options. When you exit the program, then the INI file will be created with the options that you selected.

9. Common tasks

This section will explain some common tasks that are frequently used.

9.1 Backup of user data

By default all data that you work with is located in the Work Path that you select while installing the program (by default it is C:\Place_it_VV). Work path also include file named Tableau.tab which contains information about available tableau on this machine. It is advised to frequently backup your work files and also Tableau.tab to other media (CD, floppy, tape, etc).

9.2 Using old project files

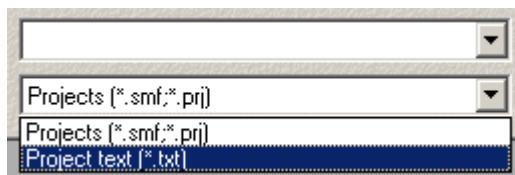
The procedure to use old Placer files is following. Start the **place_it VV** program. Then load your library if necessary (menu **Library/Open**). Then load the *.smf file (menu **Project/Open**). Project must be saved in the new format before you can send it to the machine. So save it by going to menu **Project/Save As** and enter the new project name. Now you can review your project using Project regime. If everything seems correct then go to the Communications regime and press the **PLC**, **P01** or **DIS** button to send the project to the machine.

9.3 Text files

It is possible to save or open the data of a Project as a text file (.txt).

In Project "Save as" you can select the option to save as text file.

In Project "Open" you can select the option to save as text file.



With this text file you are able to change your CAD data into Excel or an editor to receive the text format which can be used by **place_it VV**.

The following example shows you a current text file:

[Place_it I project]

[BOARD SIZE]

X	Y	Z
100.00	80.00	1.60

[BOARDS]

X	Y	DiffX	DiffY	NumX	NumY	R
20.00	10.30	110.40	80.25	2	2	0

[TABLEAU]

Tnr	Name
T1	Radio

[COMPONENT]

Pnr	X	Y	R	Plc	Dis	Fnr	Case	Name	Value	Tol	Kenn
R1	20.24	56.78	180.00	YES	NO	B1	1206	RES	100K	5.00	

R2	31.70	65.25	90.00	YES	NO	B2	1206	RES	10K	5.00	
R3	15.90	68.00	90.00	YES	NO	B3	1206	RES	2.2K	5.00	
C1	30.34	78.20	180.00	NO	NO	B4	1206	CAP	100NF	10.00	60volts
T1	44.75	20.70	180.00	YES	NO	B5	SOT23	TRAN	BC847B	0.00	
D1	77.70	14.30	180.00	YES	NO	B6	SOD80	DIODE	BAS32L	0.00	
IC1	67.00	51.20	180.00	YES	NO	B7	SO14	IC	LM324	0.00	
IC2	50.00	50.00	180.00	YES	NO	T1	FLP64	IC	S2743N	0.00	

9.4 Creating a new project

These are steps to create a new project:

1. Start creating of a new project by using **Project/New** menu.
2. Load the library which you will use together with this project (menu **Library/Open**). If the necessary library is already loaded then you don't need to load it again.
3. Activate Project regime. Fill **Header** and **Source** field.
4. Press the **Boards** button in the operations panel of Project regime. Fill in the boards information. If boards are input correctly then you should see the boards in the image.
5. It is advised to frequently save the project after you change some data to ensure that information is not lost. So save your new project by using **Project/Save** menu. You will be asked to enter the name for the project.
6. If your board will use component from tableau then you must chose which one by pressing **Tableau** button in the operations panel. If you need to create a new tableau definition then use **Machine/Tableau** menu to open dialog where you can create or modify tableau.
7. In this step you must enter all components, feeders and parts information. Open the Place Data dialog by using **Place data** button in the operations panel. It is advised to use following operations order when entering data into Place Data dialog:
 - Enter the component information.
 - Make sure that component is active (painted with inverse color).
 - Enter the parts which uses this component.
 If you follow this order then links between parts and components will be created automatically.
8. If you will use dispenser then you must enter dispenser information by using **Dispense** button in the operations panel of the Project regime.
9. You can press the **Error check** button at any time to see if your data is correct.
10. Make sure that you save the project (menu **Project/Save**).
11. Go to Communications regime when you want to send the project to the machine.
12. Press **PLC**, **P01** or **DIS** button in the operations panel of the Communications regime. This will do error check and if no errors found then will send the PLC, DIS and P01 files to the place_it machine.

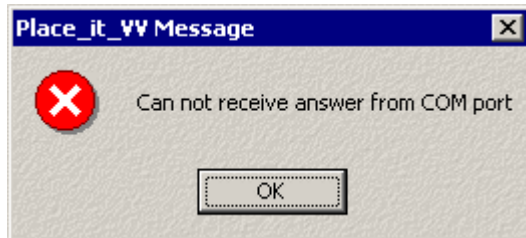
Appendix A: Interface

Cut off the PC before connection.

The connection to the PC is done by a RS 232 data transmission cable. Therefor you need a 1:1 directly transmitting cable with 3-wires and 9-pin D-Subs female on both ends. The occupancy of the cable is equivalent to the standard occupancy of an IBM-compatible PC. You have to connect the pins 2 (RxD), 3 (TxD) and 5 (ground). The interface of place_it is found on the lower side of the display panel (see chapter 4.5 in the place_it manual).

Appendix B: Error messages

The following error codes should give you a idea of possible causes if communication between place_it and PC don't work.



"Time exceeded..."

place_it VV tries to communicate with the pick-and-place machine. The error message comes up, if **place_it VV** tried five times for three seconds, without success, to contact the pick-and-place machine. Check on the cable connection to the pick-and-place machine. Is the pick-and-place machine turned on ? If so, is it in **Ready** modus ? Read also the manual of the pick-and-place machine in the chapter "Communication".

"P/P is not ready for communication..."

place_it VV was not able to get contact to the pick-and-place machine (P/P). Check the connection-cable to the pick-and-place machine. Is it turned on ? If so, is it in **Ready** modus ? Read also the manual of the pick-and-place machine in the chapter "Communication".

"File already present in the P/P memory..."

You tried to transmit a data file or library to the pick-and-place machine (P/P), which is already stored in the memory, under the used name. Use another name or -even better- delete the "old" file from the pick-and-place machine.

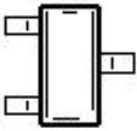
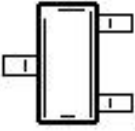
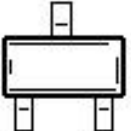
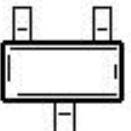
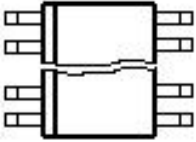
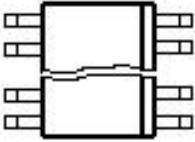
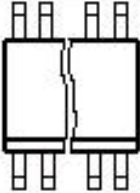
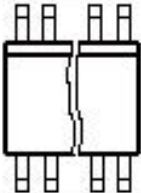


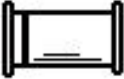
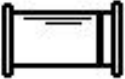

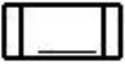
"Insufficient saving capacity in the P/P..."

You tried to transmit a data file or library to the pick-and-place machine (P/P), but it does not fit in the internal memory. Delete files and libraries, which became useless, from the pick-and-place machine.

"Too many files in the P/P..."

The internal directory of the pick-and-place machine (P/P) is not able to memorise the data file or library, which you tried to transmit. Delete files and libraries, which became useless, from the pick-and-place machine.

Appendix C: R-coordinates

	90°	270°	0°	180°
SOT 23				
SO...				
SOD80				
1206 o.ä.				

Attention: This us only with pick up angle in library

SOT23 90°
 SO... 180° and only for tapes
 SOD 80 180°
 1206.. 180°

View into the tape feeder from the front side of place_it

SOT23 Collector right
 SO... Pin on right
 SOD 80 Cathode right
 1206.. ----

Appendix D: Placement area and Tableau table

Placement table

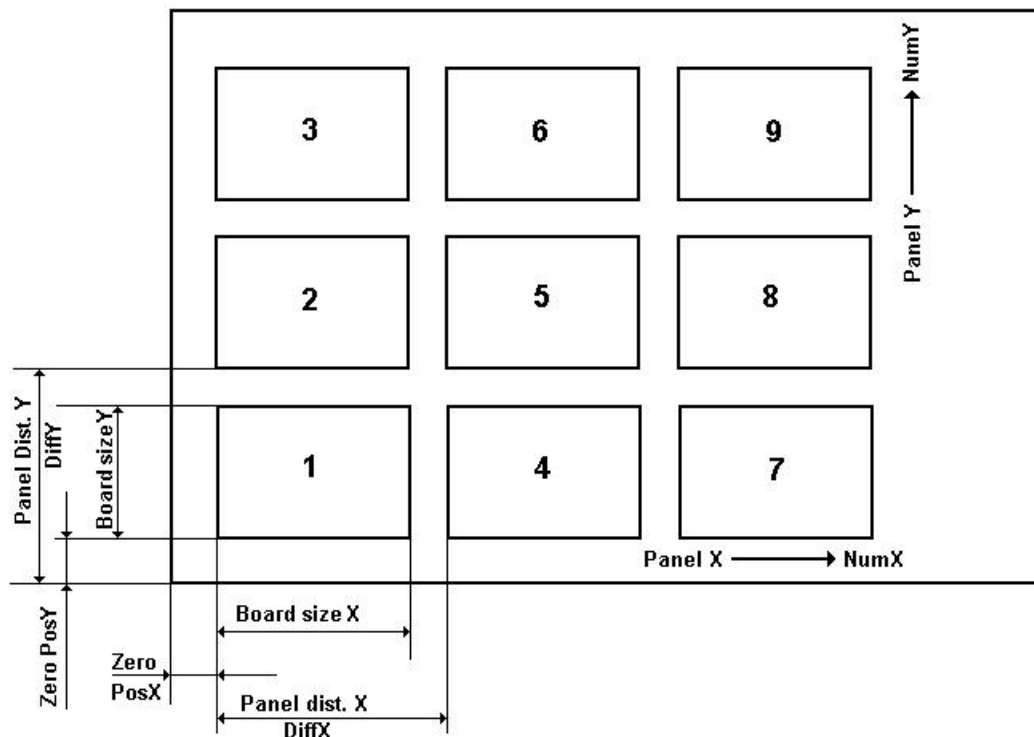
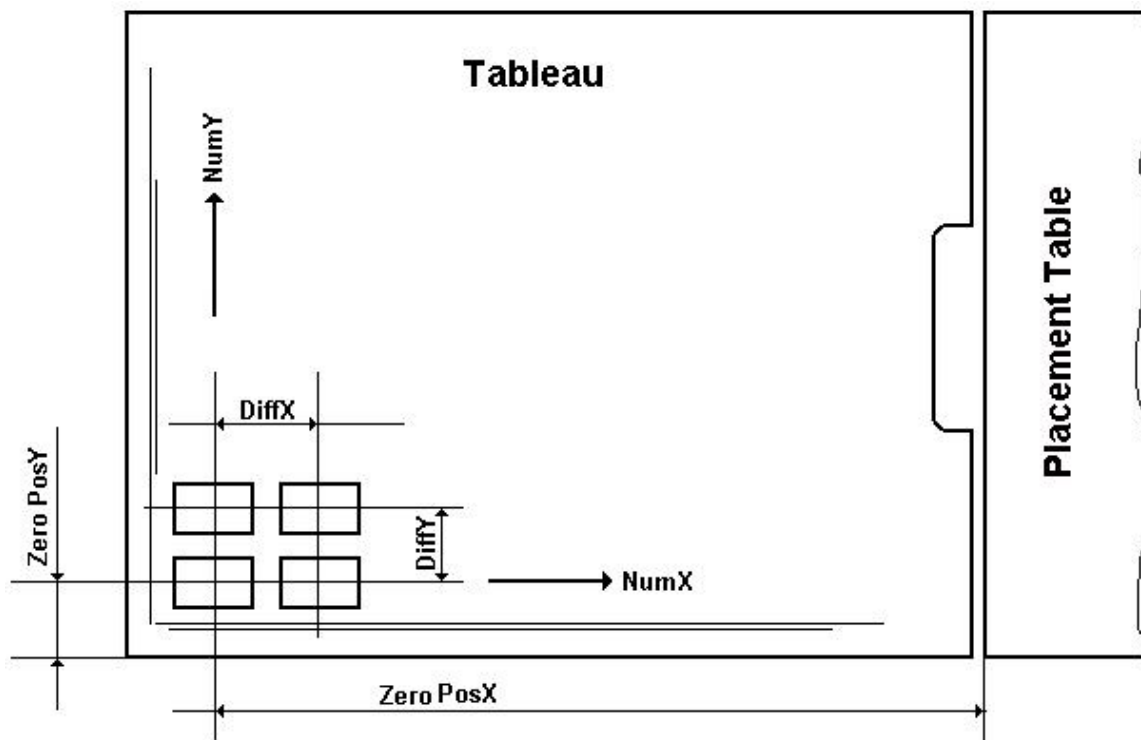



Tableau table



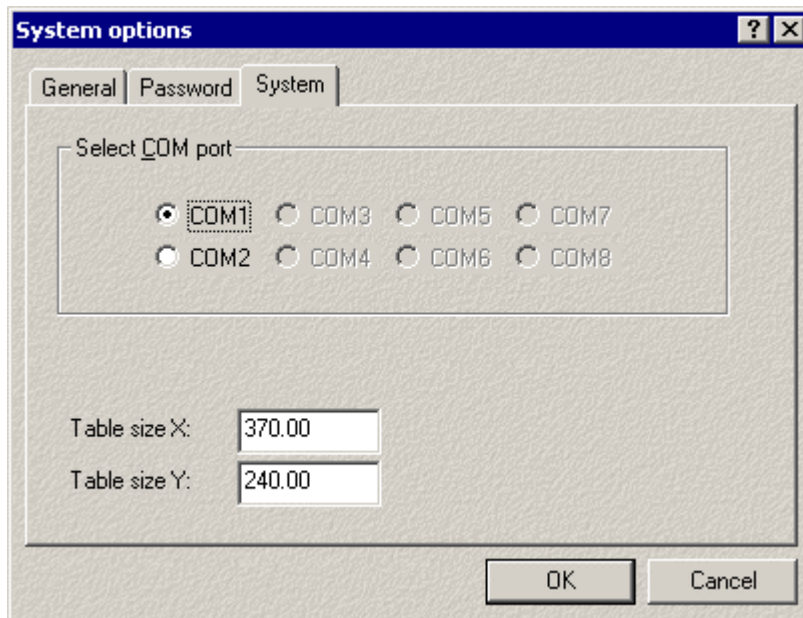
Appendix E: The King Key – Special Function

By pressing the F12 function key the special function is activated. It is shown by the king crown at the  right down on the screen.

The following function is now available:

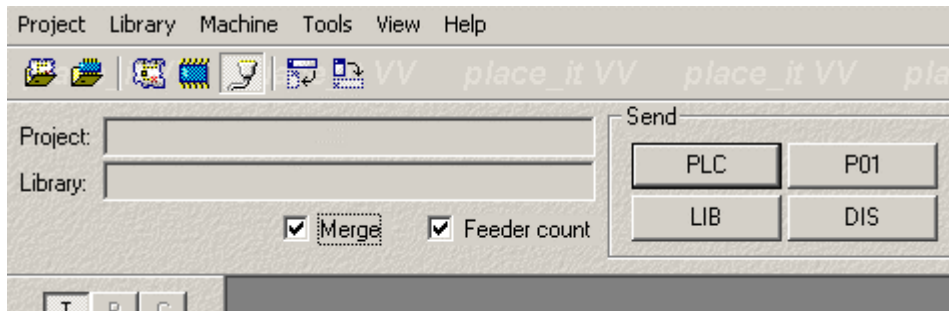
- change size of placement table
- allows writing feeder numbers up to 199. This can be used only while editing a project because pick and place machine can not accept wrong feeder numbers
- some approximate information about dispense dots are painted on screen. This is special function so coordinates are not displayed correctly!

For place_it users which have a L-Version of place_it it is necessary to change the size of the placement table. Change Table size X to 500 mm.



Appendix F: MERGE

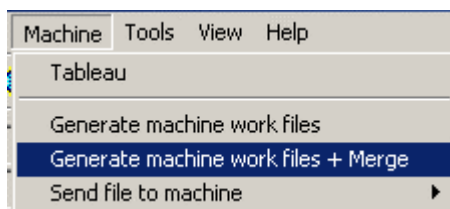
The MERGE function connects already existing assembling files with dispensing files. The result is a combined file, which first dispenses a PCB and Then, without further action, starts assembling. The user avoids herewith the annoying selection between dispensing and assembling file.



In the communication menu you will find a check box “**Merge**”. If this check box is active and you press “ Send PLC “ only a combined file out of dispensing and assembling is send to the **place_it** machine. Is the check box not active you send the assembling file.

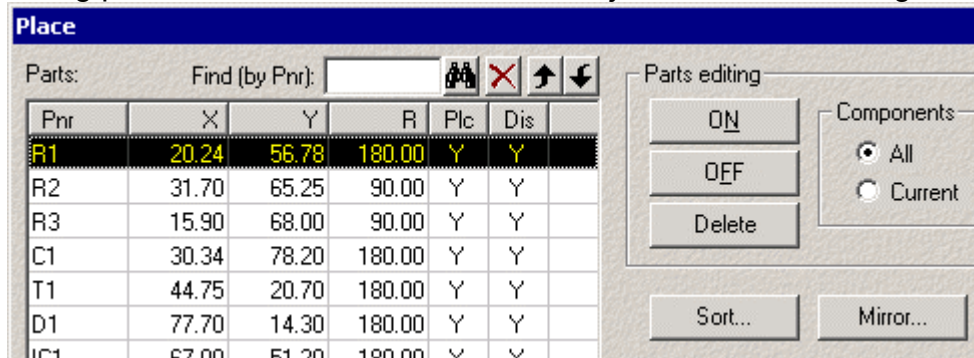
In the memory of the **place_it** machine you will find a file with the name of the project and the extension .PLC. It is your decision if this .PLC file is only a assembling file or a combined file for dispensing and assembling.

In the main menu “ Machine” you are able to select to generate a separate dispenser and assembling file or to generate a combined file out of dispensing and assembling “Generate machine work files + Merge”. The combination will come like a .PLC file.

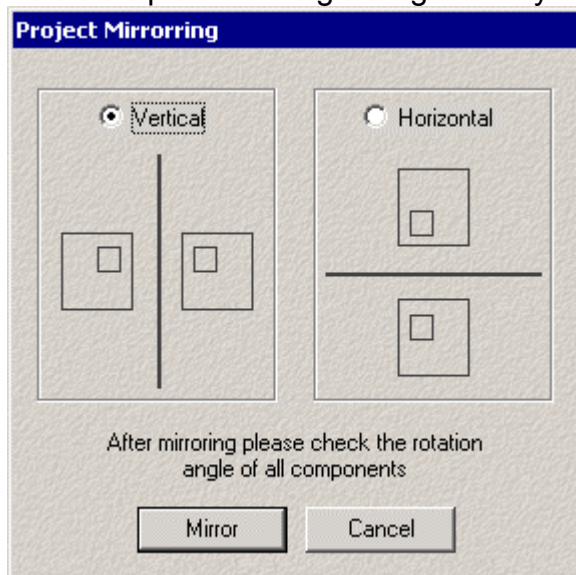


Appendix G: Mirroring

Parts in the project can be mirrored vertically or horizontally. To open the mirroring dialog press the **Mirror...** button in the Project Place Part dialog.



This will open following dialog where you can do the mirroring.



In this dialog you must select mirroring axis – **Vertical** or **Horizontal**. Press the **Mirror** button to do the mirroring or **Cancel** button to close the dialog. After mirroring you must check rotation angle of all components and parts!

Appendix H: Centering

Overview about centering types:

Type	Operation	Speed	When	Description
0	no centering	-	-	-
1	O/W	fast	drive	Diodes, Melf, Minimelf
2	N/S	fast	drive	
3	N/S+O/W	fast	drive	1206, 0805, ICs etc.
4	O/W+N/S	fast	drive	1206, 0805, ICs etc. alternative to 3
5	O/W+N/S	soft	stay	SOT 23
6	N/S+O/W	soft	stay	SOT 23 alternative to 5
7	N/S+O/W	soft	drive	SOT23
8	N/S+O/W	fast	stay	Centrifugal force of heavy components
9	N/S+O/W+N/S+O/W	fast	stay	more centering
10	N/S+O/W+N/S	fast	stay	ICs, SO.. pick up angle 180°
11	O/W+N/S+O/W	fast	stay	ICs, SO.. pick up angle 90°
12	N/S+O/W+N/S+O/W+N/S	fast	stay	further centering
13	N/S+O/W+N/S+O/W	soft	stay	alternative to 9
14	N/S+O/W+N/S	soft	stay	alternative to 11
15	O/W+N/S	fast	stay	Tantal alternative to 8

drive = centering while pick and place head is moving to position

stay = centering after the stop at the placement position